

Remarks

Election/Restriction

The species election requirement is traversed for the reasons stated in Applicant's Response dated May 24, 2004. In this regard, independent claims 47, 53 and 60 are all directed to the same species, such that the Species I, II and III categories are incorrect. Although dependent claims 54 and 61 include recitations of additional test contacts, these recitations are not contained in withdrawn claims 53, 55-60 and 63-67. Accordingly, reconsideration of the species election requirement, and the rejoinder of claims 53, 55-60 and 63-67 is requested.

Information Disclosure Statements

An Information Disclosure Statement is being filed concurrently with this Amendment. In addition, Applicant had previously filed Information Disclosure Statements dated October 31, 2003, and November 13, 2003. However, Applicant did not receive initialed copies of the PTO/SB/08A forms indicating that the references in the Information Disclosure Statements had been considered by the Examiner. Attached to this Amendment are copies of the PTO/SB/08A forms from the previously filed Information Disclosure Statements. Applicant requests initialed copies of the PTO/SB/08A forms.

Rejections Under 35 USC §102

Claims 47-52 have been rejected under 35 USC §102(e) as being anticipated by Elenius (US Patent No. 6,287,893).

The rejections under 35 USC §102 are traversed for the reasons to follow.

Summary of the Invention

The rejected claims are directed to a semiconductor component. As shown in Figure 2B, the component 50 includes a semiconductor die 54 having die contacts 62, such as bond pads, and an electrically insulating die passivation layer 76. The component 50 also includes a plurality of redistribution conductors 66 on the die passivation layer 76 configured to redistribute the pattern of the die contacts 62 into an area array, such as a grid array. In addition, the redistribution conductors 66 can either "fan out" or "fan in" the pattern of the die contact 62.

The component 50 also includes an electrically insulating outer passivation layer 78 having openings 82 aligned with selected portions of the conductors 76. The openings 82, and the selected portions of the conductors 76, are arranged in the area array provided by the redistribution conductors 66. The component 50 also includes a plurality of bumped contacts 58 in the openings 82 in the outer passivation layer 78 bonded to the selected portions of the redistribution conductors 66.

The component 50 can also include under bump metallization layers 44 (Figure 1B) configured to facilitate bonding of the bumped contacts 58 to the redistribution conductors 66. In addition, the component 50 can include test contacts 60 comprising selected portions of the redistribution conductors 66 aligned with second openings 80 in the outer passivation layer 78.

Argument

The claims have been amended to include additional recitations which further distinguish the component from the prior art.

Independent claim 47 has been amended to recite additional features of the outer layer (outer passivation layer 78) and openings (openings 82). In particular, claim 47 recites "the outer layer and the openings configured as a mask for forming the bumped contacts on the selected portions and for preventing bridging between the bumped contacts." Antecedent basis for this recitation is contained on page 13, lines 23-27, and on page 12, lines 26-28 of the specification.

Elenius et al. teaches at column 7, lines 55-60, that a second passivation layer 33 is formed by "spin coating", and "photolithography techniques are used to form patterned openings within second passivation layer 33 at the site of each of the solder bump pads (26)." Elenius et al. also teaches at column 8, lines 18-21: "The mechanical placement of the solder balls upon their respective solder bump pads is accomplished by a mechanical mask through which the solder balls are located."

Elenius et al. thus does not teach or enable an outer layer configured as a mask for forming the bumped contacts, and for preventing bridging of material between the bumped contacts during surface mounting of the component.

Dependent claim 48 has been amended to recite "the outer layer comprises a photoimageable material." Antecedent basis for this recitation is contained on page 13, line 33, to page 14, line 4, of the specification. The photoimageable material provides a process advantage for forming the outer layer. Rather than a photoimageable

material, Elenius et al. teaches benzocyclobutene, polyolefins and polyimides for the passivation layer 33 patterned using photolithography (column 7, lines 52-60).

Dependent claim 49 has been amended to recite "the outer layer is patterned to cover only selected areas on the face of the die" Antecedent basis for this recitation is contained on page 13, lines 19-22 of the specification. In Elenius the passivation layer 33 is blanket deposited by spin coating (column 7, lines 55-57).

Dependent claim 50 has been amended to recite "a depth of the openings is equal to a thickness of the outer layer minus a thickness of the conductors". Antecedent basis for this recitation is contained on page 14, lines 19-23 of the specification. In Elenius et al. the openings for the solder balls 28 extend through both of the passivation layers 24, 33.

In view of the features not taught or suggested by Elenius et al., amended claims 47-52 are submitted to be both novel and unobvious over Elenius et al.

Conclusion

In view of the amendments and arguments, favorable consideration and allowance of claims 47-67 is respectfully requested. Should any issues arise that will advance this case to allowance, the Examiner is asked to contact the undersigned by telephone.

DATED this 11th day of November, 2004.

Respectfully submitted:



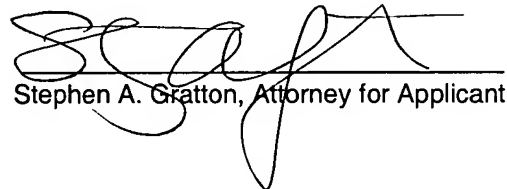
STEPHEN A. GRATTON
Registration No. 28,418
Attorney for Applicants

2764 S. Braun Way
Lakewood, CO 80228
Telephone: (303) 989-6353
FAX (303) 989-6538

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November 11, 2004
Date of Signature



Stephen A. Gratton, Attorney for Applicant